

ABSTRACT

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3 Apparatus and methods for monitoring, analyzing, and/or discriminating
4 molecular species, preferably a biomolecule, within a medium using a multisensor
5 array (MSA) and multivariate processing. Biological compounds such as nucleotides
6 and polynucleotides can be detected and analyzed. A reaction process such as an
7 accumulation cycle of nucleic acids can be monitored, analyzed, and controlled using
8 a multisensor array (MSA) and multivariate processing. Monitoring a biomolecule
9 includes interrogating the medium, and preferably its gas phase, by coupling a
10 sensor responsive to any changes of the medium and or biomolecule and its
11 secondary products when, for example, an amplification reaction is proceeded. It is
12 also a scope of the present invention to use direct detection and monitoring of
13 biomolecular reactions in real-time without radioactive or fluorescent labeling. A
14 preferred application is real-time polymerase chain reaction (PCR) detection.